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EXAMINER	
CHOUDHURY, AZIZUL Q	
ART UNIT	**PAPER NUMBER**
2145	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/629,813	SHIROGANE ET AL	
	Examiner	Art Unit	
	Azizul Choudhury	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/21/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

This office action is in response to the correspondence received on December 21, 2006.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Schuster et al (US Pat No: US006243846B1) in view of Chui US 20020165978A1), hereafter referred to as Schuster and Chui, respectively.

1. With regards to claim 1, Schuster teaches through Chui, an information-processing apparatus for converting information generated by an information generation unit into a packet to be transmitted to a network and receiving said packet from said network, said information-processing apparatus comprising:
   - a means for performing a TCP/IP conversion process to convert information generated by said information generation unit into a TCP/IP packet group to b transmitted to said network (Schuster discloses a forward error correction (FEC) system (column 2, lines 32-43, Schuster). The design is enabled for

networks and is not limited to simply traditional networks (column 3, lines 13-18, Schuster). TCP/IP is one such protocol and means by which to convert data to and from TCP/IP data-packet forms are present (column 18, line 7, Schuster));

- a management unit for managing as to whether or not a transmission partner is a target of an FEC (Forward Error Correction) communication and managing FEC redundancies (paragraphs 36 and 202, Chui) each provided for a transmission partner connected to said network (Schuster's design allows for FEC processes (column 2, lines 32-43 and column 17, lines 53-57, Schuster). Since FEC is performed, it is inherent that a portion of the design is allocated for performing such tasks (a management unit). As for the redundancies, it is inherent that FEC handles redundancies);
- an encoding unit for carrying out an FEC encoding process on a said TCP/IP packet group, which has been subjected to said TCP/IP conversion process, by referencing a redundancy held in said management unit for a transmission partner identified in the TCP/IP packet group (Encoder means are present (column 9, line 20 – column 10, line 24, Schuster). Encoding means are equivalent to encoding unit);
- and a decoding unit for carrying out an FEC decoding process on a packet group received from said network (Decoder means are present (column 10, line 25 – column 16, line 49, Schuster). Decoding means are equivalent to decoding unit);

- wherein said management unit has a table stored in a memory, an iSCSI packet grouped is managed corresponding to the transmission partner, and a redundancy catalogued in said table for each transmission partner is changed in accordance with a state of packet loss determined for said transmission partner for which said redundancy has been cataloged (Since Schuster's design implements FEC through devices, it is inherent that the claimed storage of redundancy catalogued in a table is present within the Schuster design. Plus, Schuster discloses how storing occurs and the packets are appended or stripped by the encoding and decoding processes, respectively (column 9, line 20 – column 16, line 50, Schuster). However, Schuster does not teach the use of iSCSI within an FEC design. In the same field of endeavor, Chui also discloses a network design. Chui's design makes use of FEC (paragraph 202, Chui) and shows how those devices can use iSCSI (paragraph 212, Chui). In addition, Chui also teaches how management means are present to control the transmission of data using FEC (paragraphs 36 and 202, Chui) in an iSCSI-enabled network.

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

2. With regards to claim 3, Schuster teaches through Chui, an information-processing apparatus wherein: said information-processing apparatus is a storage apparatus having a disk drive in said information generation unit; said means for performing a TCP/IP conversion process to convert information generated by said information generation unit into a TCP/IP packet group is an iSCSI-protocol processing means; said encoding unit encodes an iSCSI packet group; and said decoding unit carries out said decoding process on a packet group received from said network in order to produce an iSCSI packet group

(Schuster discloses a forward error correction (FEC) system (column 2, lines 32-43, Schuster). The design is enabled for networks and is not limited to simply traditional networks (column 3, lines 13-18, Schuster). TCP/IP is one such protocol and means by which to convert data to and from TCP/IP data-packet forms are present (column 18, line 7, Schuster). In addition, encoder means are present (column 9, line 20 – column 10, line 24, Schuster). Encoding means are equivalent to encoding unit.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in

the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

3. With regards to claim 4, Schuster teaches through Chui, an information-processing apparatus wherein data completing an FEC encoding process in said encoding unit is transmitted to said network as a UDP packet group and the UDP packet group received from said network is subjected to an FEC decoding process carried out by said decoding unit (Schuster discloses a forward error correction (FEC) system (column 2, lines 32-43, Schuster). The design is enabled for networks and is not limited to simply traditional networks (column 3, lines 13-18, Schuster). This includes UDP (column 4, lines 30-33, Schuster). However, Schuster does not teach the use of iSCSI within an FEC design. In the same field of endeavor, Chui also discloses a network design. Chui's design makes use of FEC (paragraph 202, Chui) and shows how those devices can use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

4. With regards to claim 5, Schuster teaches through Chui, a repeater for transmitting and receiving packet data through a port on a side of a network and a port on a side of a storage apparatus, said repeater comprising:
    - a transmission management table used for cataloging and managing FEC redundancies each provided for a transmission destination connected to said network; a reception management table used for cataloging and managing iSCSI data depending on whether or not a transmission partner is a target of an FEC communication and managing FEC redundancies each provided for a transmission source connected to said network (Schuster's design allows for FEC processes (column 2, lines 32-43 and column 17, lines 53-57, Schuster). Since FEC is performed, it is inherent that a portion of the design is allocated for performing such tasks (a management unit). As for the redundancies, it is inherent that FEC handles redundancies);
    - an encoding unit for carrying out an FEC encoding process on iSCSI-layer data, which has been generated by a storage apparatus in the form of packets, and providing said data with an FEC redundancy cataloged for a transmission destination by referencing said transmission management table (Encoder means are present (column 9, line 20 – column 10, line 24, Schuster). Encoding means are equivalent to encoding unit);

- and a decoding unit for carrying out an FEC decoding process on packet data, which has been received from said network, by referencing said reception management table in order to restore said iSCSI-layer data (Decoder means are present (column 10, line 25 – column 16, line 49, Schuster). Decoding means are equivalent to decoding unit. However, Schuster does not specify the existence of iSCSI devices.

In the same field of endeavor, Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui). In addition, Chui also teaches how management means are present to control the transmission of data using FEC (paragraphs 36 and 202, Chui) in an iSCSI-enabled network.

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

5. With regards to claim 6, Schuster teaches through Chui, a repeater wherein: said transmission management table is a table also used for cataloging an address of each transmission destination capable of carrying out an FEC process; said reception management table is a table also used for cataloging an

address of each transmission source capable of carrying out an FEC process; if the address of a transmission destination is found to have been cataloged in said transmission management table in reference to said transmission management table, iSCSI data is subjected to said FEC encoding process in said encoding unit and transmitted to said network; if the address of a transmission destination is found to have not been cataloged in said transmission management table in reference to said transmission management table, iSCSI data is transmitted to said network without being subjected to said FEC encoding process in said encoding unit; if the address of a transmission source transmitting packet data received from said network is found to have been cataloged in said reception management table in reference to said reception management table, said packet data is subjected to said FEC decoding process in said decoding unit in order to restore said iSCSI data; and if the address of a transmission source transmitting packet data received from said network is found to have not been cataloged in said reception management table in reference to said reception management table, said packet data is transferred to an iSCSI layer without being subjected to said FEC decoding process

(Since Schuster's design implements FEC through devices, it is inherent that the claimed storage of transmission and reception data in table is present within the Schuster design. Plus, Schuster discloses how storing occurs and the packets are appended or stripped by the encoding and decoding processes,

respectively (column 9, line 20 – column 16, line 50, Schuster). However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

6. With regards to claim 7, Schuster teaches through Chui, a repeater, further comprising a means for changing information cataloged in said transmission management table and information cataloged in said reception management table by analyzing contents of a control frame received from said network in order to add or delete an address to or from said transmission management table or said reception management table

(Since Schuster's design implements FEC through devices, it is inherent that the claimed storage of transmission and reception data in table is present within the Schuster design. Plus, Schuster discloses how storing occurs and the packets are appended or stripped by the encoding and decoding processes,

respectively (column 9, line 20 – column 16, line 50, Schuster). However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

7. With regards to claim 8, Schuster teaches through Chui, a communication method for transmitting data from an apparatus adopting an iSCSI protocol to another apparatus adopting said iSCSI protocol, said communication method comprising: a first communication mode for transmitting and receiving data in an FEC communication mode; a second communication mode for transmitting and receiving data in a TCP/IP communication mode; cataloging iSCSI Names each representing a partner, which serves as a data-communication destination, in a memory and managing said iSCSI Names; cataloging FEC redundancies each provided for a data-communication destination in a memory and managing said FEC redundancies; forming a judgment as to whether or not a specific iSCSI name of a specific partner serving as a specific data-communication destination

has been cataloged in said memory; carrying out an FEC process, which is based upon said FEC redundancy cataloged for said specific data communication destination in said memory, on data to be transmitted and transmitting said data completing said FEC process to said specific data-communication destination in said first communication mode if an outcome of said judgment indicates that said specific iSCSI Name has been cataloged in said memory; and transmitting said data to be transmitted to said specific data-communication destination in said second communication mode in a case where an outcome of said judgment indicates that said specific iSCSI Name has not been cataloged in said memory

(Schuster discloses a forward error correction (FEC) system (column 2, lines 32-43, Schuster). The design is enabled for networks and is not limited to simply traditional networks (column 3, lines 13-18, Schuster). TCP/IP is one such protocol and means by which to convert data to and from TCP/IP data-packet forms are present (column 18, line 7, Schuster). Plus the FEC processes can be enabled through devices such as hubs or routers (column 17, lines 53-57, Schuster). As for the redundancies, it is inherent that FEC handles redundancies. However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui). In addition, Chui also teaches how management means are present to control the

transmission of data using FEC (paragraphs 36 and 202, Chui) in an iSCSI-enabled network.

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

8. With regards to claim 9, Schuster teaches through Chui, a communication method, further comprising: finding a loss ratio of transmitted packets for each data-communication destination and managing said loss ratios; and changing said redundancy cataloged for a particular data-communication destination in said redundancy memory in accordance with said loss ratio found for said particular data-communication destination

(Schuster discloses how packets are evaluated to compute for loss and the packets are appended or stripped by the encoding and decoding processes, respectively (column 9, line 20 – column 16, line 50, Schuster). However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

9. With regards to claim 10, Schuster teaches through Chui, a communication method, further comprising: cataloging FEC redundancies each provided for a data-communication destination in a memory and managing said FEC redundancies in an apparatus on a reception side; forming a judgment as to whether or not the iSCSI Name of a specific transmission source has been cataloged in said memory in a process to receive specific data; and carrying out a restoration process to convert said specific data into iSCSI data on the basis of said FEC redundancy cataloged for said specific transmission source in said memory if an outcome of said judgment indicates that the iSCSI Name of said specific transmission source has been cataloged in said memory

(Schuster discloses how storing occurs and the packets are appended or stripped by the encoding and decoding processes, respectively (column 9, line 20 – column 16, line 50, Schuster). However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

10. With regards to claim 11, Schuster teaches through Chui, a communication method, further comprising: transmitting an ACK to a transmission source in response to transmitted data if iSCSI data can be restored in an apparatus on a reception side or transmitting no ACK to a transmission source in response to transmitted data if iSCSI data cannot be restored in an apparatus on a reception side; and carrying out an FEC process on the same data as said transmitted data and retransmitting said data completing said FEC process in said first communication mode to the same apparatus as said apparatus on said reception side if no ACK is received by an apparatus serving as said transmission source

(Schuster's design makes use of FEC and allows for TCP/IP. In TCP/IP, ACK transmissions are made. However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

11. With regards to claim 12, Schuster teaches through Chui, a storage system comprising a plurality of storage apparatus connected to each other by a network, by way of which data is exchanged among said storage apparatus, each of said storage apparatus comprising: a disk drive for recording data; a disk adapter connected to said disk drive; a cache memory connected to said disk adapter; a channel adapter connected to said cache memory; a means for carrying out a conversion process to convert data originated from said disk drive into an iSCSI packet group conforming to a TCP/IP; a management unit for managing as to whether or not a transmission partner is a target of an FEC (Forward Error Correction) communication and managing FEC redundancies each provided for a transmission partner; an encoding unit for carrying out an FEC encoding process on said iSCSI packet group resulting from of said conversion process and conforming to said TCP/IP by referencing said

redundancy held for a transmission partner in said management unit; and a decoding unit for carrying out an FEC decoding process on information included in a packet group received from said network; wherein in said management unit, an iSCSI packet group is managed corresponding to a transmission partner.

(Schuster discloses a forward error correction (FEC) system (column 2, lines 32-43, Schuster). The design is enabled for networks and is not limited to simply traditional networks (column 3, lines 13-18, Schuster). Plus the FEC processes can be enabled through devices such as hubs or routers (column 17, lines 53-57, Schuster). Additionally, since data is being transferred and handled, it is inherent that memory means are present within the design. However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui). In addition, Chui also teaches how management means are present to control the transmission of data using FEC (paragraphs 36 and 202, Chui) in an iSCSI-enabled network.

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

12. With regards to claim 13, Schuster teaches through Chui, a storage system wherein data is exchanged through a network among storage apparatus each comprising: an application layer for recording and processing data; an iSCSI layer for carrying out an SCSI process on data of said application layer; and TCP and IP layers for carrying out a TCP/IP process on data of said iSCSI layer, said storage system comprising: an FEC encoding process layer for carrying out an encoding process to add a redundancy code to data from said iSCSI layer; a UDP layer for carrying out a UDP process on data completing said encoding process; and an IP layer for carrying out an IP process on data from said UDP layer

(Schuster discloses a forward error correction (FEC) system (column 2, lines 32-43, Schuster). The design is enabled for networks and is not limited to simply traditional networks (column 3, lines 13-18, Schuster). TCP/IP is one such protocol (column 18, line 7, Schuster). UDP is another such protocol (column 4, lines 30-33, Schuster). Plus the FEC processes can be enabled through devices such as hubs or routers (column 17, lines 53-57, Schuster). Additionally, encoder means are present (column 9, line 20 – column 10, line 24, Schuster). Encoding means are equivalent to encoding layer and encoding unit. However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui). In

addition, Chui also teaches how management means are present to control the transmission of data using FEC (paragraphs 36 and 202, Chui) in an iSCSI-enabled network.

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

13. With regards to claim 14, Schuster teaches through Chui, a storage system further comprising an FEC decoding process layer for decoding data coming from said network, completing said IP process at said IP layer and completing said UDP process at said UDP layer

(Schuster discloses a forward error correction (FEC) system (column 2, lines 32-43, Schuster). The design is enabled for networks and is not limited to simply traditional networks (column 3, lines 13-18, Schuster). This includes UDP and IP (column 4, lines 30-34, Schuster). Additionally, decoder means are present (column 10, line 25 – column 16, line 49, Schuster). Decoding means are equivalent to decoding layer and decoding unit. However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

14. With regards to claim 15, Schuster teaches through Chui, a storage system, further comprising a means for changing redundancy of a redundant code to a value suitable for a transmission destination at said FEC encoding process layer

(Schuster discloses how storing occurs and the packets are appended or stripped by the encoding and decoding processes, respectively (column 9, line 20 – column 16, line 50, Schuster). As for redundancies, it is inherent that FEC handles redundancies. However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art,

during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

15. With regards to claim 16, Schuster teaches through Chui, a communication method for transmitting data by way of a network from an apparatus adopting an iSCSI protocol to another apparatus adopting said iSCSI protocol, said communication method comprising: a first communication mode for transmitting and receiving data in an FEC communication mode including an FEC process; a second communication mode for transmitting and receiving data in a TCP/IP communication mode; forming a judgment as to whether or not a partner serving as a data communication destination has an iSCSI layer on the basis of an iSCSI Name; carrying out an FEC process based upon an FEC redundancy provided for a communication partner on data to be transmitted and transmitting the data completing said FEC process to said partner in said first communication mode in a case where an outcome of said judgment indicates that said partner has an iSCSI layer; and transmitting the data to a communication partner in said second communication mode in a case where an outcome of said judgment indicates that said partner does not have an iSCSI layer

(Schuster discloses a forward error correction (FEC) system (column 2, lines 32-43, Schuster). The design is enabled for networks and is not limited to simply traditional networks (column 3, lines 13-18, Schuster). TCP/IP is one such

protocol and means by which to convert data to and from TCP/IP data-packet forms are present (column 18, line 7, Schuster). Plus the FEC processes can be enabled through devices such as hubs or routers (column 17, lines 53-57, Schuster). As for the redundancies, it is inherent that FEC handles redundancies. Additionally, Schuster's design allows determinations to be made based on parity data based on the FEC algorithm (column 10, lines 10-24). Such means are viewed as being equivalent to the claimed judgment trait. However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui). In addition, Chui also teaches how management means are present to control the transmission of data using FEC (paragraphs 36 and 202, Chui) in an iSCSI-enabled network.

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

16. With regards to claim 17, Schuster teaches through Chui, a storage system wherein: said conversion means, said management unit, said encoding unit and

said decoding unit are accommodated in an FEC conversion adapter; said FEC conversion adapter is connected to said channel adapter through an interface

(Schuster discloses a FEC system (column 2, lines 32-43, Schuster). Since FEC is performed, it is inherent that a portion of the design is allocated for performing such tasks (a management unit). Since Schuster's design implements FEC through devices, it is inherent that the claimed storage of redundancy catalogued in a table is present within the Schuster design. Plus, Schuster discloses how storing occurs and the packets are appended or stripped by the encoding and decoding processes, respectively (column 9, line 20 – column 16, line 50, Schuster). Additionally, encoder and decoder means are present (column 9, line 20 – column 16, line 49, Schuster). Encoding means and decoding means are equivalent to encoding and decoding units and layers, respectively. However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

17. With regards to claim 18, Schuster teaches through Chui, a storage system, wherein said storage system has a duplicate component of each of said disk drive, said disk adapter, said cache memory, said channel adapter and said FEC conversion adapter

(Since Schuster's design implements FEC through devices, it is inherent that the claimed storage of redundancy catalogued in a table is present within the Schuster design. Plus, Schuster discloses how the packets are appended or stripped by the encoding and decoding processes, respectively (column 9, line 20 – column 16, line 50, Schuster). However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

18. With regards to claim 19, Schuster teaches through Chui, a storage system, further comprising a server for management use connected to a network,

wherein said server issues commands to add and delete transmission destinations' addresses controlled by said management unit

(Since Schuster's design implements FEC through devices, it is inherent that the claimed storage of transmission and reception data in table is present within the Schuster design. Plus, Schuster discloses how storing occurs and the packets are appended or stripped by the encoding and decoding processes, respectively (column 9, line 20 – column 16, line 50, Schuster). However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

19. With regards to claim 20, Schuster teaches through Chui, a repeater, further comprising a table used for cataloging an iSCSI Name of each data transmission destination, wherein an FEC communication is permitted in a transmission of data to a specific data transmission destination only if the iSCSI Name of said specific data transmission destination has been cataloged in said table

(Schuster discloses a forward error correction (FEC) system (column 2, lines 32-43, Schuster). The design is enabled for networks and is not limited to simply traditional networks (column 3, lines 13-18, Schuster). Plus the FEC processes can be enabled through devices such as hubs or routers (column 17, lines 53-57, Schuster). However, Schuster does not specify the existence of iSCSI devices.

Chui also discloses a network design. The design makes use FEC (paragraph 202, Chui) and devices that use iSCSI (paragraph 212, Chui).

Both Schuster and Chui teach network designs. While Schuster's disclosure does not detail the existence of iSCSI devices, Chui teaches that such devices are in existence. Therefore, it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Schuster with those of Chui, to provide a highly reliable, highly available, and highly scalable system (paragraph 28, Chui)).

Remarks

The amendment received on December 21, 2006 has been carefully examined but is not deemed fully persuasive. In lieu of the claim amendments, the rejection has been revised. The concerns expressed within the reply portion of the amendment are addressed in the paragraphs below.

The first point of contention addressed by the applicant involves the inherency argument made with regards to FEC and redundancy. The applicant contends that the examiner provides no evidence supporting the inherency argument. The claim

language described "FEC redundancies each provided for a transmission partner connected to the network..." The examiner reminds the applicant that a feature/trait is inherent only when it is known, to one skilled in the art, that the feature/trait must be present for a design/method to function or be valid. Sound reasoning by one skilled in the art need only support inherency. Art supporting inherency claims are not required but can be provided. In the case of FEC, it is well known that redundancy is applied to the packets. This can be supported by various sources, one of which is the online reference site, Wikipedia. Within Wikipedia it is said, "FEC is accomplished by adding redundancy to the transmitted information using a predetermined algorithm. (February 1, 2007, Wikipedia.org)" Hence, the examiner stands by his inherency rejection.

Another point of contention involves the trait of "storage of catalog redundancy, cataloged for each transmission partner." The examiner explained within the after final arguments that such a trait was also deemed inherent. This is inherent because FEC performs redundancy algorithms on packets, which are sent to receiving nodes. Any network device that sends data, such as a server, has tracking means by which to log the receiving nodes with which it communicates. Both Schuster and Chui teach FEC enabled designs that allow for a server to send the packets to nodes.

As for the newly amended claim features, the claims now claim that the manager communicates with FEC enabled devices. The applicant contends that such features are not taught by Schuster or Chui. The examiner disagrees. Chui teaches how management means are present to control the transmission of data using FEC (paragraphs 36 and 202, Chui).

As for the concerns involving the combination of the Schuster prior art with the Chui prior art, the issue was evaluated. The examiner has determined that the combination of prior arts was proper. The arts are analogous and the motivation is valid.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Azizul Choudhury whose telephone number is (571) 272-3909. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on (571) 272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

JASON CARDONE
SUPERVISORY PATENT EXAMINER